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Pharmacognostical investigation of different extracts of *Celastrus peniculatus* seeds and its protective effect against glutamate induced cytotoxicity in IMR-32 cells

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One of the causes for neurodegenerative diseases is apoptosis of neuronal cells due to oxidative stress and modulating it by plant product having antioxidant properties is an emerging therapeutic mode. *Celastrus peniculatus* (CP) has long been used in our Ayurveda due to its antioxidant property as a traditional herbal medicine to relieve symptoms associated with neurological ailments such as vertigo, general paralysis, epilepsy, etc. In this study, we have investigated the free radical scavenging capacity of Methanolic Extract (ME), Ethanolic Extract (EE), Petroleum Ether Extract (PE) and commercially available CP Seed Oil (CPO) by DPPH assay, ABTS assay and NO scavenging assay. Moreover, we also studied the cytotoxic effect of Glutamate (the important neurotransmitter whose increased concentration is responsible for excitotoxicity) as well as ameliorative effect of CP extracts and CPO on IMR-32 cells with the help of MTT assay. Result revealed that the data of inhibition concentration of DPPH, ABTS and NO scavenging assay was comparable. It also depicted that EE showed higher free radical scavenging capacity at lower concentration among different extracts and CPO. The results of dose dependent neuroprotection study of different extracts against toxicity induced by glutamate in IMR-32 cells revealed significant protection in MTT assay. Moreover, it also indicates that at lower concentration EE effectively inhibited the cytotoxicity caused by Glutamate and improve cell viability in IMR-32 cells as compared to ME, PE and CPO. Hence, among various CP extracts and CPO, the ethanolic extract can be used as a potential candidate for treatment of neurodegenerative diseases.

Biography

Naumita Shah is currently pursuing her PhD from Gujarat University and completed her MSc in Cell and Molecular Biology from the same university. She is a DST INSPIRE Fellow in Gujarat University, Ahmedabad.

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